ASV305BF7xxxW: VAV compact controller

How energy efficiency is improved

Demand-based volume flow control in order to optimize energy consumption in ventilation systems. Differential pressures of at least 1 Pa can be controlled to allow minimal volume flows at the lowest duct pressure and energy consumption

Features

- Supply and return air control for individual rooms such as offices, conference rooms and hotel rooms, in conjunction with a VAV box or a damper and flow probe
- Pressure control in supply and return air ducts for low-noise, energy-efficient air distribution
- Measurement of differential pressure with or differential sensor I2C, 16 bits
- Can be used for measuring in areas with dirty or contaminated return air
- Low energy consumption and long serviceable life thanks to low wear DC motor
- Electromechanical torque-based switch-off for safe operation
- Extremely simple installation due to self-centering shaft adapter
- Disengageable gear unit for manual adjustment and positioning of damper
- Integrated control loop for the following applications:
  - Room climate regulation
- 2 x RS-485 bus interface on RJ11 and connection terminal
  - Communication within network via BACnet MS/TP
  - Connection to Room Unit via Modbus RTU
- Input and output signals for connecting:
  - Setpoints and actual values
  - Power outputs for reheaters and recoolers
  - EY-RU305 digital room operating units
  - Analogue output
- Delivered in pre-configured application to increase installation efficiency:
  - Heating/Cooling
  - Cooling only
- Adjustable end values of the differential pressure measuring range
  - 0...500 Pa
- Efficient control algorithm for fast control loops
- Priority control via switching contacts
- Zero point can be calibrated
- Controller comes with pre-defined program, it can be freely modified or totally reprogrammed using the corresponding engineering software

Technical data

Power supply		
Power supply	Power supply	24 V~, +/-10%, 50...60 Hz
Power consumption at nominal voltage 50/60 Hz (~/=)	Power consumption during operation	1.5 W
	Power consumption when idle	0.5 W
Parameters		
Integrated damper actuator	Angle of rotation	90° (95° mechanical)
	Admissible dimensions of damper shaft	Ø 6...16 mm, □ 5. 12 mm
	Admissible damper shaft (hardness)	Max. 300 HV
	Surge-voltage resistance	Supported
	Operating noise	< 42 dB (A)
∆p sensor	Measuring range ∆p (gain = 1)	0...500 Pa
	Linearity error	3% of reading
	Time constant	0.23 s
	Influence of position	< 1 Pa
	Reproducibility	0.5% FS
	Zero-point stability	< 0.05 Pa / Year
	Admissible positive pressure	±1 kPa
	Admissible operating pressure pstat	±5 kPa
	PE tube	Outside diameter 3.175mm (0.125”)
Ambient conditions		
	Operating temperature	0...50 °C
	Storage and transport temperature	-20...70 °C
	Admissible humidity	5% to 95% rh, non-condensing
Inputs/outputs		
	Universal inputs	Dry contact for any kind input & Thermistor 10k Type 2

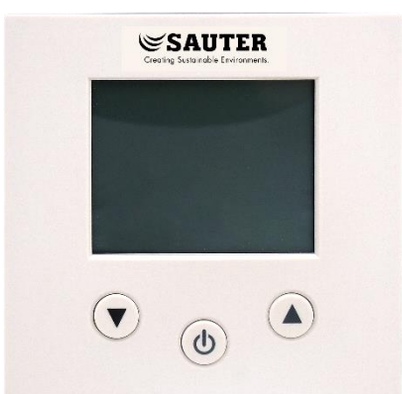
	Analogue outputs	0-10V, 4-20mA ,12 bits resolution
Interfaces and communication		
	RS-485 not electrically isolated	9600-76800 BPS, 1200 Meters
	Communication protocols	BACNET MS/TP RS485
		9600-76800 BPS, 1200 Meters
	BACnet BTL certification	BACnet Application Specific Controller (B-ASC)
	Access method	Client/server
	Topology	Line, daisy chain
	Number of participants	Up to 127 recommended 32
	Bus termination	120 Ω (both ends) SW4 (S3)
Construction		
	Weight	0.68 kg
	Fitting	Self-centering spindle adapter
Standards and directives		
	Type of protection	IP00 (EN 60529)
	Protection class	III (EN 60730)
	Conformity	Machine directive 2006/42/EC, appendix II 1.B
	EMC Directive 2014/30/EU	EN 61326 1 :2013 Electrical equipment for measurement, control and laboratory use EMC requirements Part 1: General requirements EN 61326-1:2013, EN 61000-4-2:2009, EN 61000-4-3:2006+A1:2008+A2:2010, EN 61000-4-8:2010, FCC Part 15,subpart B,Class A

Overview of types

Type	Measuring range Δp	Running time for 90°	Torque	Inputs/Outputs
ASV305BF7000W	0...500 Pa	75s to 85s	5 Nm	0
ASV305BF7200W	0...500 Pa	75s to 85s	5 Nm	2 UI, 0 DO, 0 AO
ASV305BF7220W	0...500 Pa	75s to 85s	5 Nm	2 UI, 2 DO, 0 AO
ASV305BF7202W	0...500 Pa	75s to 85s	5 Nm	2 UI, 0 DO, 2 AO
ASV305BF7222W	0...500 Pa	75s to 85s	5 Nm	2 UI, 2 DO, 2 AO

Accessories

Type	Description
EY-RU305F7001W	Room unit with LCD display and temperature sensor
EY-RU305F7002W	Room unit with LCD display, humidity, and temperature sensor
EY-RU305F7003W	Room unit with LCD display, humidity, CO2, and temperature sensor



Description of operation

The ASV 305 is a VAV compact controller for supply and return air control for individual rooms such as offices, conference rooms and hotel rooms, in conjunction with a VAV box or a damper and flow probe.
The ASV 305 may only be used for the intended purposes stated here.
The pressure difference generated at an orifice plate or Pitot tube is recorded by a differential pressure sensor and converted to a flow-linear signal.

The VAV compact controller is shipped from the factory with the cooling only default configuration. The inputs and outputs are preconfigured according to the table.

BACnet MS/TP protocol

Implementation BACnet device

Product	Device profile
ASV305BF7x00W	BACnet Application Specific Controller (B-ASC)

Supported BIBBs

Product	Supported BIBBs	BIBB name
ASV305BF7x00W	DS-RP-B	Data Sharing-ReadProperty-B
	DS-RPM-B	Data Sharing-ReadPropertyMultiple-B
	DS-WP-B	Data Sharing-WriteProperty-B
	DM-DDB-B	Device Management-DynamicDeviceBinding-B
	DM-DDC-B	Device Management-DeviceCommunicationControl-B

Supported standard objects

Product	Object type	Variable	Deletable
ASV305BF7x00W	Analog Value	Yes	No
	Device	No	No
	Binary Value	Yes	No

Data Link Layer options

Product	Data Link	Options
ASV305BF7x00W	MS/TP Slave	9600, 19200, 38400, 76800

Device Address Binding

Product	Supports static binding
ASV305BF7x00W	Yes

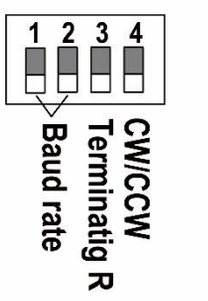
Network options

Product	Supports static binding
ASV305BF7x00W	No

Character set

Product	Supported character set
ASV305BF7x00W	ANSI X3.4

Hardware configuration

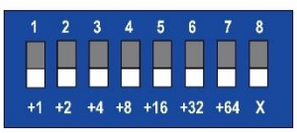


SW4(S1,2) → SET BAUD RATE OF COMMUNICATION

Factory-set 38.4k, the baud rate of communication can be changed by the baud rate switch (Slide 1, 2 of SW1) on the actuator's housing.

SW4(S4) → CHANGING DIRECTION OF ROTATION

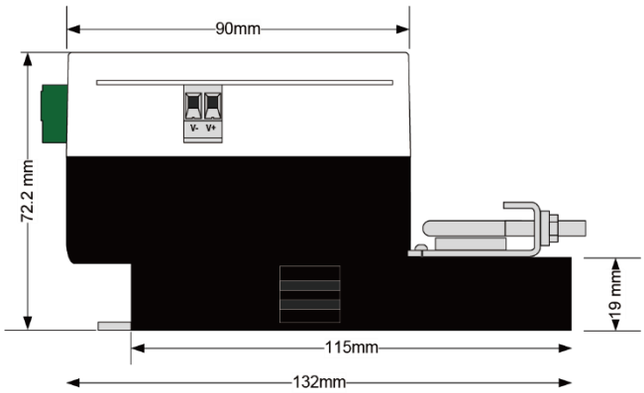
Factory-set CW, the direction of rotation can be changed by the CW/CCW switch (Slide 4 of SW4) on the actuator's housing.

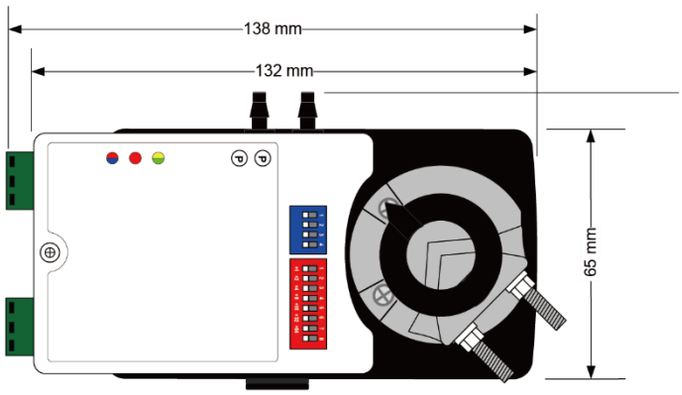


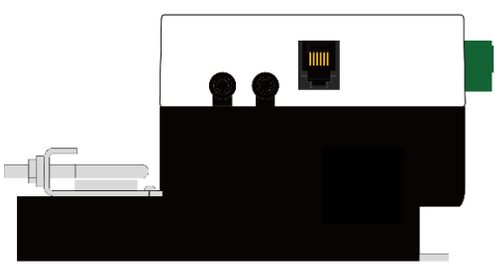
SW8 → SET MAC ADDRESS OF ACTUATOR

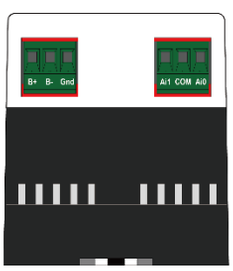
Factory-set NO.1, The MAC address of actuator can be changed by the MAC address switch (Slide 1-7 of SW8) on the actuator's housing, Slide 8 of SW8 no use.

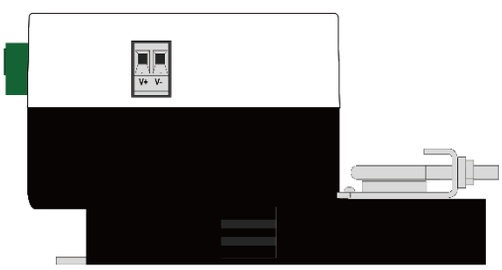
Dimension drawing

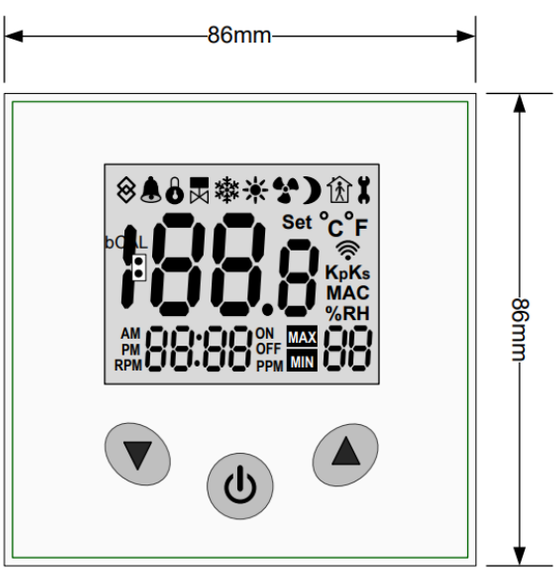


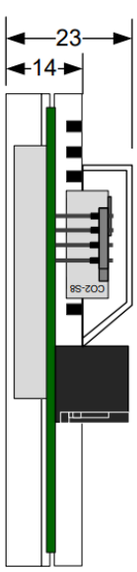


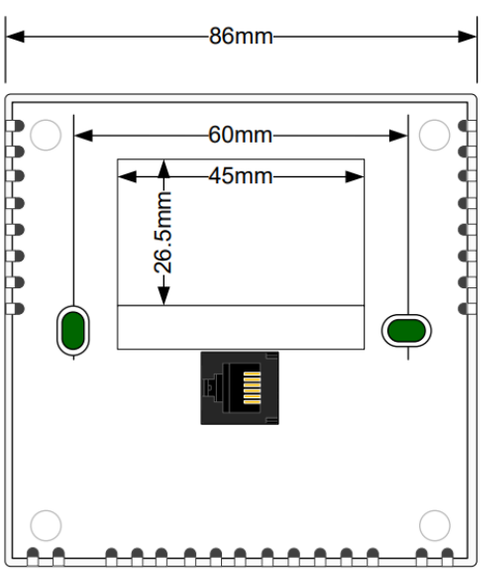












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